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ABSTRACT

This experiment compared the effects of training young black children in vocabulary versus sentence construction to see which type of training would result in greater transfer to other areas of language performance. A total of 144 black children in preschool and kindergarten were randomly assigned to vocabulary training, sentence training, or control groups. All children were tested with the Peabody Picture Vocabulary Test (PPVT), a sentence imitation test (SIT), and a picture interview (PI), before and after the 6-week training period. Vocabulary training involved practice in recognizing and applying words from the PPVT and the PI. For sentence training, the children imitated sentences similar to those in the SIT and constructed new instances of the same sentence types. Analyses of variance showed a positive effect of vocabulary training on the PPVT, but sentence training did not affect performance on the SIT. There was no evidence of transfer from vocabulary to sentence imitation. The implication of the results is that time devoted to language training for young black children is better spent on vocabulary than on sentence construction. (Author/DR)

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Effects of Training Young Black Children in Vocabulary vs. Sentence Construction

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In recent years there has been considerable interest in facilitating the language development of young disadvantaged children through some sort of direct intervention (Corbin & Crosby, 1965). In spite of all the activity in this area, we still know very little about the differential effects produced by specific types of early language training. We ought to find out which aspects of language are most amenable to early training, and which types of training have the greatest transfer value for stimulating language development in general. Otherwise our attempts at intervention will be inefficient, or even inappropriate, with potentially damaging consequences for the children involved.

This report is concerned with an experimental study which compared the effects of training children in vocabulary versus sentence construction. A few words ought to be said about our rationale in choosing to study this particular contrast. First of all, previous studies have dealt with very complex language training programs, tending to confound the effects of different methods with those of different content (Cazden, 1965; Dickie, 1968). In our case, we hoped to hold method as constant as possible, while setting up a clearcut difference in content.

The specific contrast between vocabulary and syntax was suggested not only by a formal analysis of language, but also by some recent theorizing about language acquisition and the disadvantaged child. On the one hand, vocabulary appears to be the one area of language in which young children normally receive much deliberate instruction from adults (Cazden, 1968). Thus, if a child grows up around adults who are unwilling or unable to pay much attention to his language, vocabulary may be at the heart of a resulting language deficit. On the

other hand, one popular belief nowadays is that disadvantaged children are brought up in a community which speaks only a "restricted code". The restrictedness is primarily syntactic. Consequently, the child does not develop an ability to use the full range of syntactic possibilities in "elaborating" his sentences (Bernstein, 1964).

Let us assume that a "deficiency model" is, at least to some extent, appropriate for describing the language of disadvantaged children. It seems reasonable, then, to suppose that a direct attack on the root cause of the deficit will be the most efficient way to stimulate language development. Since we do not know whether the disadvantaged child's deficiency stems primarily from vocabularly or from syntax, we might begin by simply comparing the effects of training in one or the other.

METHOD

Subjects

The subjects of our study were two large samples of Black children in the San Francisco Bay Area. These samples differed in three potentially important ways. First, one sample (N = 69) was drawn from preschool classes and had a mean age of 4 1/2 years at the beginning of the study. The other sample (N = 66) came from kindergarten classes and had a mean age of 5 years 9 months. Secondly, the preschool classes were virtually all Black, whereas the kindergartners were enrolled in racially balanced classes. Finally, although both samples were of generally low SES, the kindergartners were somewhat higher according to the usual indices.

Design and Procedure

The design and procedure of the study involved three distinct phases.

In the Pretest Phase, a battery of three tests was administered to all children individually. This battery was made up of the Peabody Picture Vocabulary Test (Form B), a Sentence Imitation Test, and a Picture Interview. The Peabody is a widely used recognition test of vocabulary. The Sentence Imitation Test consisted of 50 model sentences constructed especially for this study. The sentences were presented by an experimenter in Standard English, with the instruction to "say just what I say". The Picture Interview was patterned after one used by Loban (1967). After some warmup questions concerning the child's family, his favorite TV programs, and so on, a series of six pictures was shown and the child was encouraged to talk about each one.

The children in each sample were divided at random into three equal groups: a vocabulary training group, a sentence training group, and a control group. Then came the Training Phase, which lasted six weeks. During this period, the experimental subjects were taken out of their regular classes, four at a time, to participate in training sessions. There were two 20-minute sessions per week for each group of four children. The composition of each group, and the trainer assigned to it, remained the same throughout the Training Phase. The control subjects had virtually no contact with the experimenters at this time.

Finally, in the Posttest Phase, all children again received the Peabody, the Sentence Imitation Test, and the Picture Interview. No child was tested and trained by the same experimenter; in other words, the testing was "blind". The experimenters in each phase were white, college-educated women who had no connection with the regular school programs. A balanced design controlled the effects of tester, trainer, sex of child, and classroom from which a child was drawn.

Content and Method of Training

Time will not permit a detailed account of the training sessions, so a general description of content and methods will have to suffice.

The vocabulary training was aimed at a list of target words drawn from two sources. Thirty-six of the words were taken directly from the Peabody. Previous data had indicated that these words were largely unknown among comparable samples of children. Such blatant "teaching to the test" was necessary in order to establish whether or not our vocabulary training had any effect at all. Another set of 33 words was suggested by the pictures from the Picture Interview. For the training sessions, we grouped the words in conceptual or functional families, such as household tools. The words were then presented to the children with appropriate objects and pictures, and the children were required to apply the words to a variety of instances. We had them take turns so that each child would have about the same number of opportunities to respond. Correct responses were praised and corrective feedback was provided when a word was used incorrectly or when there was no response. We did not use the Peabody pictures or the interview pictures at any time in the training sessions.

Sentence training was quite similar to vocabulary training so far as method was concerned. The emphasis was on active responding by individual children, with the application of target forms to new objects and pictures. The target forms in this case, however, were syntactic structures rather than words. We attempted to have the children produce sentences which were grammatically similar to those in the Sentence Imitation Test. Although practically all of the children used some elements of Black English, our sentence training focused not on dialect features, but on various elaborated constructions which are

found in both the standard and the non-standard dialects of adults. In other words, we wanted the children to elaborate their sentences by means of adjectives, possessive nouns, prepositional phrases, relative clauses, and adverbial clauses. The trainers provided model sentences and encouraged generalization to new instances, praising successes and helping the children to correct failures. None of the actual test sentences were used for training.

RESULTS

In looking at the results, our primary interest lies in finding group differences on the posttest. (Group differences on the pretest ought to have been precluded by random assignment of subjects, and the pretest data bear this out.) We derived a number of dependent measures from the test battery. For each measure, and within each of the two samples, we did a separate analysis of variance with two planned comparisons at the .025 level of significance. Some data from the Peabody vocabulary test will illustrate this paradigm.

Table 1 shows the means for raw scores on the Peabody posttest. First we compared the means of the sentence group and the control group in order to see whether or not sentence training produced any transfer to vocabulary performance. The difference was not significant in either sample of subjects. Then, to test the direct effect of vocabulary training, the vocabulary group was compared to the combined sentence and control groups. This contrast was significant in both samples. As you can see, the vocabulary subjects averaged about 13 or 14 words higher than subjects in the other two conditions.

A similar analysis was performed on the number of target words (types) pro-

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duced by each subject in the posttest interview. Only the preschool sample has been analyzed in this way so far. It should be noted that we did not score the accuracy with which target words were used, but simply their occurrence in a child's speech. The means for this measure are shown in the top row of Table 2. The sentence and control groups are not significantly different, but the vocabulary group is significantly higher than the other two groups combined. Although this difference is not very great (about 2 words) it does show that the vocabulary subjects could produce more target words as well as recognize them. Remember, too, that we did not actually ask the children to produce the target words; they had to do so spontaneously.

The preschool interviews were also analyzed for total word types and total word tokens. The means for these measures are shown in the remainder of Table 2. The only significant difference is between the vocabulary group and the other two on total word types. Notice how large this difference is in relation to the target words - 19 words vs. 2. It appears then that vocabulary training had a general effect on the variety of words produced in the interview.

Turning now to the Sentence Imitation Test, a number of measures are possible, but only two scores will concern us here. One is the number of sentences, out of 50, which a child repeated with virtually no deviations. For convenience, we have called this score "clearly correct". The second score, "clearly wrong," reflects major deviations from the model sentences, such as the omission of content words or the reversal of grammatical relations like subject and object. We thought this score might be fairer to children who would respond with Black English equivalents of the model sentences. In other words, some Black children might deviate from the model sentences in several minor

ways associated with dialect variation without getting many sentences clearly wrong. In practice, however, the two scores had a high negative correlation, with r = -.80.

In any case, the Sentence Imitation Test failed to show any significant differential effects of training. The relevant means are in Table 3. The planned comparisons showed no transfer of vocabulary training to sentence imitation performance, and no direct effect of training in sentence construction. These negative results cannot be attributed to unreliability of our sentence imitation scores. In addition to the correlation reported above, we have found test-retest correlations ranging from +.80 to +.90, somewhat higher than the Peabody test.

DISCUSSION

The overall results may be summarized very quickly. Children who received vocabulary training recognized and produced more of the target words than children in the sentence training and control groups. Sentence training did not affect performance on a Sentence Imitation Test containing the target constructions. There were no transfer effects from vocabulary to syntax or vice versa, but vocabulary training did increase the general variety of words produced in an interview.

These results could be explained in several ways. For the moment, let us focus on the failure of sentence training rather than the success of vocabulary training.

A learning-theory analysis of the two training conditions suggests one explanation. Sentences, being larger units than words, simply take up more

time, both as stimuli and as responses. Since we held total training time constant in both conditions, the subjects trained on sentences probably had fewer "learning trials" during the Training Phase - maybe too few to show any learning on the posttest.

A second explanation may be proposed from one psycholinguistic frame of reference. Some writers believe that the child's acquisition of syntax is relatively impervious to direct instruction (Cazden, 1968). According to this view, the child constructs a grammar of the language around him in a manner consistent with innate predispositions (McNeil, 1966). This developmental process takes time to unfold, either because of a strong maturational component, or because of the stepwise revisions which the child must go through in constructing his grammar. In our sentence training sessions, we sometimes had the feeling that we were asking some children to produce forms which they just were not ready to acquire - especially certain adverbial and relative clauses. At other times, the target forms seemed already to be well within a child's linguistic competence. In these cases, a failure to produce a particular form probably indicated that the child lacked the inclination or the performance skills to reveal his competence on demand. We have begun to discover lots of complexity in the children's spontaneous speech from the pretest interview, including several of the contructions we used for training. All in all, our sentence training may not have matched very well with the growing edge of the children's language. Our syntactic analysis of the interview ought to shed some light on this issue.

The interview data will help us answer a related question - one which concerns the "restricted code" hypothesis. It is often assumed that low-SES

Black children are deficient in their use of grammatical complexity, but there is no convincing evidence that this is true, especially at the preschool and kindergarten age levels. The measures of complexity used in the past may have been biased against Black English (Loban, 1967; Williams and Naremore, in press). We have been developing new measures which, hopefully, will avoid this problem. Our measures will be applied to the interviews conducted in the present study, and to similar interviews with middle-class white children. If we find no ethnic differences in syntactic complexity, then we might account for the failure of our sentence training by saying that the Black children in our samples had as much facility with syntax as one could expect for children their age.

The results of our training study have one very practical implication: if there is to be language training for young Black children, the time is better spent on vocabulary than on sentence construction. This recommendation seems especially appropriate for programs in which a limited amount of time is devoted to structured language activities. At the very least, children can learn many of the specific words being taught. We have also seen some evidence that vocabulary training has a more general effect on variety in vocabulary. The children we trained in vocabulary may have been inspired to learn extra words outside of the training sessions, or they may simply have developed a set to make fuller use of whatever vocabulary they had learned already. Either of these side effects seems quite desirable. At this point, it becomes important to ask what makes vocabulary training succeed. If we knew, we could try to maximize the effects of vocabulary training through a more principled selection of content and methods of instruction. But that's another story.

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TABLE 1

Means of Peabody Raw Scores

	Training Group		
	Sentence	Vocabulary	Control
Preschool	41.3	55.3	41.1
Kindergarten	56.2	68.7	55.3

TABLE 2

Mean of Word Counts from Picture Interview (Preschool Only)

	Training Group		
	Sentence [a]	Vocabulary	Control
Target Word Types	8.6	10.3	8.0
Total Word Types	167.6	196.1	178.2
Total Word Tokens	710.6	822.4	767.4

[a] N = 22 due to missing data for one S.

TABLE 3

Mean Scores (Out of 50) from Sentence Imitation Test

	Training Group		
	Sentence	Vocabulary	Control
"Clearly Correct"			
Preschool	14.4	16.0	15.7
Kindergarten	22.3	24.1	24.4
"Clearly Wrong"			
Preschool	12.0	11.5	13.6
Kindergarten	8.6	8.3	7.7